

Notice of Allowability	Application No.	Applicant(s)	
	10/606,725	HAGGE ET AL.	
	Examiner	Art Unit	
	Stephen G. Sherman	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed the 11 April 2006.
2. ☒ The allowed claim(s) is/are 1-4 and 6-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kyle Eppele (Registration No. 34,155) on the 8 May 2006.

2. The application has been amended as follows:

Please amend claim 1 as follows:

1. A display system, comprising:

a plurality of tiles, each tile of the tiles including a matrix of pixel elements, the pixel elements selectively providing light at a first surface of the tile in response to address signals, the pixel elements being coupled to an address circuit via contacts at a second surface, the first surface being opposite the second surface;

wherein the contacts extend below the second surface and are coupled to the pixel elements, wherein the contacts are disposed between rib structures, wherein the rib structures are not other contacts; and

an interconnect member coupled to the second surface, the interconnect member including a front surface coupled to the second surface, and a back surface

opposite the front surface, wherein conductive vias extend from the front surface to the back surface, the conductive vias being coupled to the contacts; and

a medium having a mounting surface, the plurality of tiles being attached to or above the mounting surface.

Please cancel claim 5.

Please amend claim 6 as follows:

6. The display system of claim 5 1, further comprising:
- an interposer coupled to the interconnect member, the interposer including the address circuit.

Please amend claim 8 as follows:

8. A cockpit display, comprising:
- a plurality of display tiles, at least one tile of the display tiles including a matrix of pixel elements that form a pixel web, the pixel display tiles including contacts at a second surface of the pixel web, ~~the~~ a first surface being opposite the second surface;
- wherein the contacts extend below the second surface and are coupled to the pixel elements, wherein the contacts are disposed between rib structures, wherein the rib structures include dielectric material; and
- an interconnect member coupled to the second surface, the interconnect member including a front surface coupled to the second surface, and a back surface

opposite the front surface, wherein conductive vias extend from the front surface to the back surface, the conductive vias being coupled to the contacts; and

a medium having a mounting surface, the plurality of display tiles being attached to or above the mounting surface at the first surface.

Please amend claim 10 as follows:

10. The cockpit display of claim 9, wherein the ~~display tile further comprises a flexible interconnect medium coupled to the contacts.~~ interconnect member is flexible.

Please amend claim 11 as follows:

11. A display apparatus, comprising:

first means for providing first light from first pixel elements at a first surface, the first surface being opposite a second surface, the second surface including first contacts, the first contacts being disposed between rib structures, wherein the rib structures are insulated electrically from the first contacts;

an interconnect member coupled to the second surface, the interconnect member including a front surface coupled to the second surface, and a back surface opposite the front surface, wherein conductive vias extend from the front surface to the back surface, the conductive vias being coupled to the contacts;

first means for providing first paths for first electric signals, the first paths being connected to the first contacts, the first means for providing first paths being mounted behind the second surface and being closer to the second surface than the first surface;

second means for providing second light from second pixel elements at a third surface, the third surface being opposite a fourth surface, the fourth surface including second contacts,

second means for providing second paths for second electric signals, the second paths being connected to the second contacts, the second means for providing second paths being mounted behind the fourth surface and being closer to the fourth surface than the third surface; and

means for providing the first electric signals and second electric signals to the first means for providing first paths and the second means for providing second paths, the first electric signals and second electric signals controlling the first light and the second light.

Please amend claim 13 as follows:

13. A method of operating a display, the method comprising:

providing first electric signals from behind a back surface of a first pixel web to the back surface of the first pixel web, the first pixel web being located on a first tile, the first pixel web including contacts on the back surface, and an interconnect member coupled to the back surface, the interconnect member including a front surface coupled to the back surface, and a second surface opposite the front surface, wherein conductive vias extend from the front surface to the second surface, the conductive vias being coupled to the contacts, the contacts being disposed between rib structures, wherein the rib structures are non-conductive material;

providing light at a front surface of the first pixel web on the first tile in accordance with the first electric signals;

providing second electric signals from behind a back surface of a second pixel web to the back surface of the second pixel web, the second pixel web being located on a second tile;

providing light at a front surface of the second pixel web on the second tile in accordance with the second electric signals.

Please amend claim 16 as follows:

16. A method of manufacturing a display system, the method comprising:

providing a plurality of tiles, each of the tiles having a first surface and a second surface parallel with a first plane and an interconnect member coupled to the second surface, wherein the first surface includes a plurality of pixel elements for selectively providing light, the second surface including a plurality of contacts electrically associated with the pixel elements, the interconnect member including a front surface coupled to the second surface, and a back surface opposite the front surface, wherein conductive vias extend from the front surface to the back surface, the conductive vias being coupled to the contacts, the contacts being disposed between rib structures, the rib structures including dielectric material;

providing a transparent carrier medium; and

attaching the tiles to a carrier medium.

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Please amend claim 19 as follows:

19. A display comprising:

a plurality of tiles, each of the tiles having a first surface and a second surface parallel with a first plane and an interconnect member coupled to the second surface, wherein the first surface includes a plurality of pixel elements for selectively providing light, the second surface including a plurality of contacts electrically associated with the pixel elements, the interconnect member including a front surface coupled to the second surface, and a back surface opposite the front surface, wherein conductive vias extend from the front surface to the back surface, the conductive vias being coupled to the contacts, wherein conductive vias extend from the contacts to the pixel elements in a direction relatively perpendicular to the first plane, the conductive vias being disposed between rib structures, wherein the rib structures are trapezoidally shaped.

Allowable Subject Matter

3. Claims 1-4 and 6-20 are allowed.

4. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance is the inclusion of the interconnect member coupled to the second surface with conductive vias extending through the interconnect member to be connected to the contacts in combination with the contacts extending below the second surface of the tile to be coupled to the pixel elements and the

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contacts being disposed between rib structures, which is not found singularly or in combination in the prior art.

The closest prior art reference is Matthies (US 6,498,592) that teaches of a tiled display which allows the pixels to be brought up to the edge of the display while allowing the pixels to be addressed from behind the tiles, however, Matthies fails to teach of the structure in which an interconnect member is connected to contacts located at a surface in which the contacts are disposed between rib structures.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SS

8 May 2006

AMR A. AWAD
PRIMARY EXAMINER
